



technical services group

B&W Capabilities Overview

*Japan – U.S. Decommissioning &
Remediation*

*Fukushima Recovery Forum
February 18, 2014*



Ed Wannemacher

Director of Business Development

Key Company Metrics



Supplied >300k MW of installed capacity
in >800 utilities in over 90 countries

Provided >300 nuclear steam generators
to customers worldwide

- 140-year-old company
- 60+ years serving DoD
- B&W operates a network of 13 major manufacturing facilities globally
- 12,000 employees worldwide, plus 10,000 joint venture employees
- Approximately 11,000 employees are in nuclear operations and missions
- Skill sets include scientists, engineers, technicians and administrative
- Majority of Nuclear Operations and Technical Services B&W employees (~4,300) hold security clearances from NRC, DOE and DOD
- NRC Licenses
 - › SNM-42 – NOG, Lynchburg, VA
 - › SNM-124 – NFS, Erwin, TN
- 5 of our manufacturing facilities are ASME N-Stamp certified

Segments and End Markets

Nuclear Operations

- Virginia-Class submarine program
- Ford-Class carrier program
- Refueling
- Fuel processing and fabrication

Technical Services

- Nuclear material handling, storage and security
- Nuclear laboratories
- Nuclear weapons complex
- Decontamination and decommissioning
- Specialty / classified manufacturing

Nuclear Energy

- Field services
- Plant modifications
- Component manufacturing and installation
- Fuel design, enrichment and fabrication
- B&W mPower™

Power Generation

- Coal-fired power generation
- Service, operation and maintenance
- Construction and EPC
- Environmental systems (FGD, SCR, mercury, carbon)
- Renewables (Biomass, solar, waste-to-energy)



Leading technology innovator in power generation and a specialty manufacturer of nuclear components with legacy spanning 140 years

Manufacturing Capabilities



- A complete machining center
- Beveling equipment
- Brakes and shears
- CNC lathes and drills
- Complete line of NDE tools and equipment
 - X-ray
 - Dye penetrant
 - Ultrasonic
- Heat treatment furnaces
- Manual and automated welding capabilities
- Oxy-Fuel and plasma arc cutting equipment
- Plate rolls
- State of the art paint booth facility
- Tube beveling, bending and swaging
- 400-ton (plus) overhead crane capacity

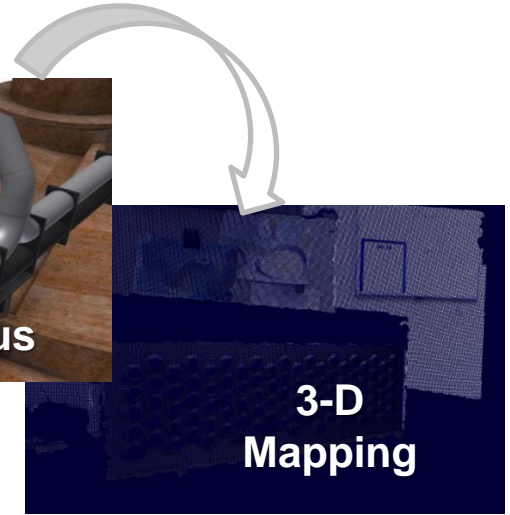
B&W Intech: Machine Vision Plus Engineered Tools and Services

Core Competencies:

- **Steam Generator Services**
- **Inspection Services**
- **Manipulator Systems**
- **Robotic Tooling**
- **Audio/Video Systems & Mapping**



**Robotic ROV
Mapping Inside Torus**



**3-D
Mapping**



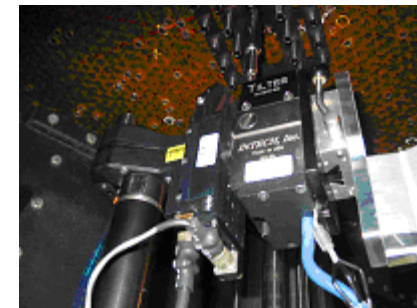
**Custom Tooling Design &
CAD/CAM Machining**



Custom Manipulator Systems



Mock-ups and Fixturing



**Steam Generator Robotic Repair
and Maintenance Tooling**

Nuclear Equipment Capabilities



STEAM GENERATORS

305 Units



**REACTOR VESSEL CLOSURE
HEADS**
8 Units



HEAT EXCHANGERS

133 Units

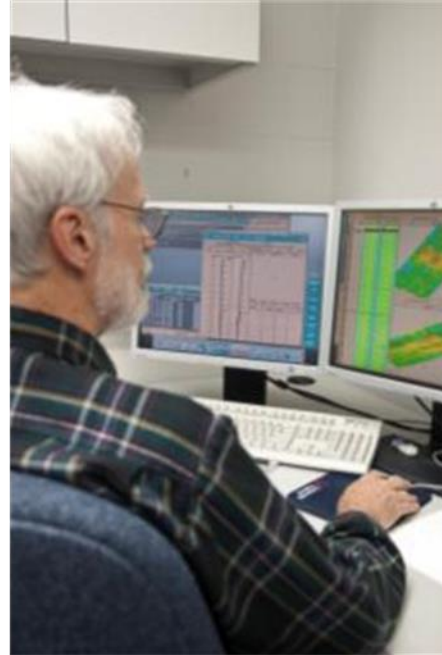


SPENT FUEL CASKS

100 Units

- Steam Generators (PWR and PHWR)
- Pressurizers, Heat Exchangers and Tanks
- Spent Fuel Dry Storage Casks
- Misc. Nuclear Components
(feeders, reactor vessel closure heads, service structures, etc.)

Nuclear Services Capabilities



- Steam Generator Services
- Heat Exchanger Services
- Reactor Services
- Specialized Inspection and Repair

- Plant Modifications
- Laboratory Services
- Engineering Services
- Valve Services

Services for U.S. Department of Energy

National Nuclear Security Agency

- Y-12 National Security Complex M&O
- Pantex Plant M&O
- Los Alamos National Laboratory M&O
- Lawrence Livermore National Laboratory M&O
- Nevada National Security Site M&O
- Naval Reactors Enterprise D&D

Nuclear Energy (NE)

- Idaho National Laboratory M&O

Office of Science

- Oak Ridge National Laboratory

Environmental Management

- Uranium Conversion Operations
- Advanced Mixed Waste Treatment Project
- Portsmouth Gaseous Diffusion Plant D&D
- West Valley Demonstration Project Decommissioning & Facility Disposition
- Waste Isolation Pilot Plant M&O
- Savannah River Liquid Waste Disposition Program
- Paducah Environmental Remediation Project

B&W mPower™ Attributes

Innovative Design

- Single integrated nuclear module
- Underground reactor and used fuel
- Air-cooled main condenser
- Inherently safe, gravity powered



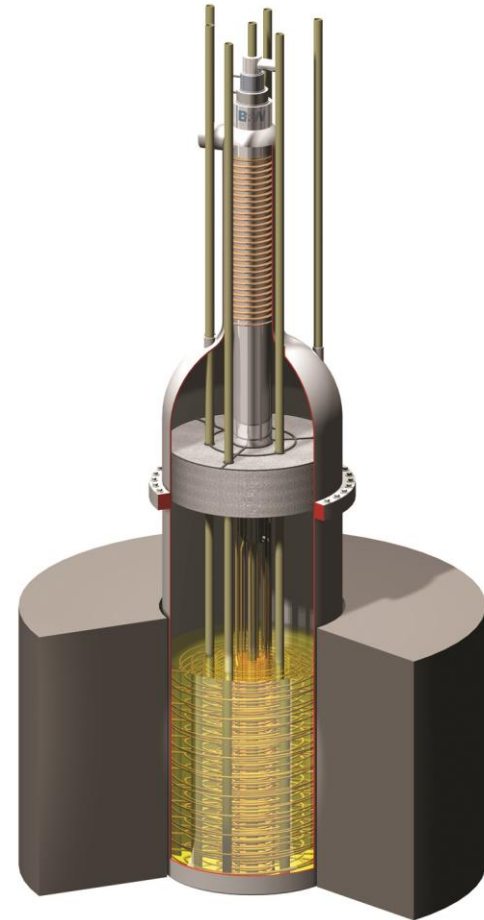
Breakthrough Performance

- 160 MWe increments with no size-premium
- 100 times safer than latest standard
- 4-year operating cycle (2x standard)
- 7+ days station blackout capability

“Disruptive Technology” ... stepping beyond traditional limits

Medical Isotope Production System (MIPS)

- New production capacity for molybdenum-99, the precursor of the medically important radioisotope technetium-99m
- Four 220-kWt aqueous homogeneous reactors (AHR) and a single facility for extracting the Mo-99 and incorporating it into nuclear medicine products
- AHRs would use low-enriched uranium



Recommendations for International Collaboration

Implement proven Mt. Fuji Team Model

- Integrate international capabilities through Japanese company.
- Leverage local supply chain
- Bring lessons learned from previous restoration projects.
- Apply project management rigor

Assign funding and oversight

Implement performance based contracts

Establish sense of urgency



Photo courtesy of <http://www.cnn.com>